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Geater Machining and Manufacturing

Part I: Overview of Business

Geater Machining and Manufacturing (GMM) is a veteran owned company that was established in 1962, and is located in Independence, IA. They focus on making precision machined and fabricated parts for aerospace, electronic, and other high-tech industries. GMM has a solid reputation for meeting their customers needs with on-time delivery, high standards of quality, and incredible problem-solving abilities. GMM proudly performs as much work in-house as possible. This includes machining, sheet metal fabrication, and finishing/hardware installation all under one roof.

Part II: Job Specifics

- Project/Part design
- CNC toolpath programming
- Creating/Milling the actual workpiece
- Verifying dimensional accuracy
- Deburring/finishing operations

Part III: Introduce the Problem

A prototype part needs to be created that has an engraving toolpath. The company does not currently have any mill-specific design software for creating this G&M code, yet still needs to find a way to create this part for a customer utilizing their current equipment

Part IV: Background

- Students will need basic shop safety, drafting/design, and measurement skills
- Students will have used the milling machine in a traditional manual setting/mode of operation
- Students will also have used the CNC router and CNC plasma table in previous classes, so they are familiar with two types of design software

Part V: Business Solution

- Use MasterCam design software to design part and assign toolpaths of part and fixture
- Send program to Protocell for machining the prototype
- Re-program parts/fixtures for higher production machines based upon customer demand

Part VI: Student Solutions

- Manually write out the required CNC code (difficult on elaborate parts-time consuming)
- Purchase the required CAD/CAM software (costly for low volume jobs)
- Hire this part of the job out to an outside source (may open the door to competitors or have customer confidentiality issues)
- Use one of the two design programs from the other cnc equipment to post process this code to the correct format for the milling machine